**2.5 Implicit Differentiation**

**Determine whether or not Implicit Differentiation is needed for each function (it can be used on all functions).**

1. *x2 + y2 = 36* 2. *x2y + y2x = 2* 3. *xy – y = 6*

**Find the first derivative of each using implicit differentiation.**

4. 2*x2 + 3y2 = 6 5*. *xy + y2x = 2x2 6*. *xy + y2 = 6x*

7. x ½ + y 3 = 9 y 8. *y = sin(x+y)* 9. *sinx + cos(2y)= 1*

10. In your own words, describe the difference between an implicitly defined function and an explicitly defined function.

**Find the second derivative of each:**

11. *x2 + 3y3 = 6 12. xy + y2 = 6x*